

Please provide the following information, and submit to the NOAA DM Plan Repository.

Reference to Master DM Plan (if applicable)

As stated in Section IV, Requirement 1.3, DM Plans may be hierarchical. If this DM Plan inherits provisions from a higher-level DM Plan already submitted to the Repository, then this more-specific Plan only needs to provide information that differs from what was provided in the Master DM Plan.

URL of higher-level DM Plan (if any) as submitted to DM Plan Repository:

1. General Description of Data to be Managed**1.1. Name of the Data, data collection Project, or data-producing Program:**

Hydrographic & Topographic LIDAR Acquisition, Northwest Coast, Washington State - Bathymetric Survey Data

1.2. Summary description of the data:

These data were collected by the SHOALS-1000T(Scanning Hydrographic Operational Airborne Lidar Survey)system which consists of an airborne laser transmitter/receiver with a 1kHz. bathymetric laser and a10 kHz topographic laser. The system was operated from a Beechcraft King Air 90aircraft. Data were collected with the bathymetric laser while flying at altitudes of about 400 meters and a groundspeed of about 124 knots. The topographic laser data was collected at altitudes of about 700 m and a groundspeed of 150 kts. One KGPS base stations was used during processing of the dataset. The SHOALS system includes a ground-based data processing system for calculating accurate horizontal position and water depth / elevation. LIDAR is an acronym for LIght Detection And Ranging. The system operates by emitting a pulse of light that travels from an airborne platform to the water surface where a small portion of the laser energy is backscattered to the airborne receiver. The remaining energy at the water\ x92s surface propagates through the water column and reflects off the sea bottom and back to the airborne detector. The time difference between the surface return and the bottom return corresponds to water depth. The maximum depth the system is able to sense is related to the complex interaction of radiance of bottom material, incident sunangle and intensity, and the type and quantity of organics or sediments in the water column. As a rule-of-thumb, the SHOALS 1000 system is capable of sensing bottom to depths equal to two or three times the Secchi depth. Bathymetric soundings are gridded in this dataset.

1.3. Is this a one-time data collection, or an ongoing series of measurements?

One-time data collection

1.4. Actual or planned temporal coverage of the data:

2005-04-18, 2005-04-19, 2005-04-20, 2005-04-21, 2005-04-22, 2005-04-23, 2004-05-24

1.5. Actual or planned geographic coverage of the data:

W: -124.793255, E: -124.627795, N: 48.409543, S: 48.145092

1.6. Type(s) of data:

(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)
raster digital data

1.7. Data collection method(s):

(e.g., satellite, airplane, unmanned aerial system, radar, weather station, moored buoy, research vessel, autonomous underwater vehicle, animal tagging, manual surveys, enforcement activities, numerical model, etc.)

1.8. If data are from a NOAA Observing System of Record, indicate name of system:

1.8.1. If data are from another observing system, please specify:

2. Point of Contact for this Data Management Plan (author or maintainer)

2.1. Name:

OCNMS GIS Coordinator

2.2. Title:

Metadata Contact

2.3. Affiliation or facility:

Office of National Marine Sanctuaries

2.4. E-mail address:

olympiccoast@noaa.gov

2.5. Phone number:

3. Responsible Party for Data Management

Program Managers, or their designee, shall be responsible for assuring the proper management of the data produced by their Program. Please indicate the responsible party below.

3.1. Name:

OCNMS GIS Coordinator

3.2. Title:

Data Steward

4. Resources

Programs must identify resources within their own budget for managing the data they produce.

4.1. Have resources for management of these data been identified?

4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "unknown"):

5. Data Lineage and Quality

NOAA has issued Information Quality Guidelines for ensuring and maximizing the quality, objectivity, utility, and integrity of information which it disseminates.

5.1. Processing workflow of the data from collection or acquisition to making it publicly accessible

(describe or provide URL of description):

Process Steps:

- 2005-05-20 00:00:00 - The SHOALS airborne system acquires a tremendous volume of raw data during a single mission. The lidar data are unique and require a specialized Ground Control System (GCS) for survey planning and post-processing. The GCS main functions1) import airborne data stored on removable hard drives;2) perform quality control checks on initial depths and horizontal positions;3) provide display and edit capabilities;4) calculate depth and position (XYZ) values for each sounding; and5) output final positions and depths for each sounding. The GCS possesses an automated capability to post-process the data to obtain corrected depth and horizontal positions within the specified system accuracies. This is accomplished by accurately identifying the surface and bottom returns from the airborne data. Depths are determined by computing the time difference between the arrival of the surface and bottom returns. Corrections are computed and applied for depth biases associated with light propagation, water level fluctuations, and various inherent system characteristics. Surface waves are modeled and removed so that depths can be referenced to a common mean water surface. Applying tidal corrections and/or KGPS corrections then produces a depth referenced to a known datum. A manual processing capability also allows evaluation of anomalous data by providing display and edit functions of sounding data and system parameters. Digital photos collected once per second (and easily viewed during editing) permit visual scrutiny of the area to aid the hydrographer in deciding whether to exclude suspect data from further processing. Output from the GCS is a digital data set of XYZ(positions/depths) for each laser sounding that is compatible with most GIS and other contouring and mapping systems.
- 2006-04-01 00:00:00 - Both positional information and project control for the LIDAR survey were supplied by the KGPS in the ellipsoidal datum of NAD83. For ease of merging the data set with existing multibeam sounding data, survey instructions required the data to be projected during post-processing and delivered in the UTM Zone 10 projection. The Geoid99 height model was used to convert the vertical datum from the ellipsoidal 3-D datum of NAD83 to the orthometric vertical datum NAVD88. But to accurately merge the LIDAR data with existing multibeam sounding data, the data sets must obviously be in the same vertical reference frame (Milbert 2002). Since the multibeam sounding data were referenced to an averaged tidally-derived vertical datum (MLLW) and the LIDAR data were referenced to an

orthometric vertical datum (NAVD88) based on Mean Sea Level (MSL), a VDatum model (Spargo et. al 2006) was used to vertically transform the LIDAR data to MLLW for compatibility and comparison with the multibeam sounding data. The VDatum model relates the NAVD88 to MLLW by using a grid, or zone, of tide model comparisons with known leveled tide benchmark stations to better account for the spatial variability of tidal dynamics over a given area (Milbert 2002; Spargo et. al 2006). The VDatum model that was used is available for download at http://chartmaker.ncd.noaa.gov/csdl/vdatum_projectsWA.htm.

5.1.1. If data at different stages of the workflow, or products derived from these data, are subject to a separate data management plan, provide reference to other plan:

5.2. Quality control procedures employed (describe or provide URL of description):

6. Data Documentation

The EDMC Data Documentation Procedural Directive requires that NOAA data be well documented, specifies the use of ISO 19115 and related standards for documentation of new data, and provides links to resources and tools for metadata creation and validation.

6.1. Does metadata comply with EDMC Data Documentation directive?

No

6.1.1. If metadata are non-existent or non-compliant, please explain:

Missing/invalid information:

- 1.7. Data collection method(s)
- 4.1. Have resources for management of these data been identified?
- 4.2. Approximate percentage of the budget for these data devoted to data management
- 5.2. Quality control procedures employed
- 7.1. Do these data comply with the Data Access directive?
- 7.1.1. If data are not available or has limitations, has a Waiver been filed?
- 7.1.2. If there are limitations to data access, describe how data are protected
- 7.3. Data access methods or services offered
- 7.4. Approximate delay between data collection and dissemination
- 8.1. Actual or planned long-term data archive location
- 8.3. Approximate delay between data collection and submission to an archive facility
- 8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?

6.2. Name of organization or facility providing metadata hosting:

NMFS Office of Science and Technology

6.2.1. If service is needed for metadata hosting, please indicate:

6.3. URL of metadata folder or data catalog, if known:

<https://inport.nmfs.noaa.gov/inport/item/40078>

6.4. Process for producing and maintaining metadata

(describe or provide URL of description):

Metadata produced and maintained in accordance with the NMFS Data Documentation

Procedural Directive: <http://www.nmfs.noaa.gov/op/pds/documents/04/111/04-111-01.pdf>

7. Data Access

NAO 212-15 states that access to environmental data may only be restricted when distribution is explicitly limited by law, regulation, policy (such as those applicable to personally identifiable information or protected critical infrastructure information or proprietary trade information) or by security requirements. The EDMC Data Access Procedural Directive contains specific guidance, recommends the use of open-standard, interoperable, non-proprietary web services, provides information about resources and tools to enable data access, and includes a Waiver to be submitted to justify any approach other than full, unrestricted public access.

7.1. Do these data comply with the Data Access directive?

7.1.1. If the data are not to be made available to the public at all, or with limitations, has a Waiver (Appendix A of Data Access directive) been filed?

7.1.2. If there are limitations to public data access, describe how data are protected from unauthorized access or disclosure:

7.2. Name of organization of facility providing data access:

Office of National Marine Sanctuaries

7.2.1. If data hosting service is needed, please indicate:**7.2.2. URL of data access service, if known:**

<http://olympiccoast.noaa.gov/science/habitatmapping/habitatmapping.html#datacatalog.html>

7.3. Data access methods or services offered:**7.4. Approximate delay between data collection and dissemination:**

7.4.1. If delay is longer than latency of automated processing, indicate under what authority data access is delayed:

8. Data Preservation and Protection

The NOAA Procedure for Scientific Records Appraisal and Archive Approval describes how to identify, appraise and decide what scientific records are to be preserved in a NOAA archive.

8.1. Actual or planned long-term data archive location:

(Specify NCEI-MD, NCEI-CO, NCEI-NC, NCEI-MS, World Data Center (WDC) facility, Other, To Be Determined, Unable to Archive, or No Archiving Intended)

8.1.1. If World Data Center or Other, specify:

8.1.2. If To Be Determined, Unable to Archive or No Archiving Intended, explain:

8.2. Data storage facility prior to being sent to an archive facility (if any):

Office of National Marine Sanctuaries - Silver Spring, MD

8.3. Approximate delay between data collection and submission to an archive facility:

8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?

Discuss data back-up, disaster recovery/contingency planning, and off-site data storage relevant to the data collection

9. Additional Line Office or Staff Office Questions

Line and Staff Offices may extend this template by inserting additional questions in this section.